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(56) Documents Cited

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(58) Field of Search

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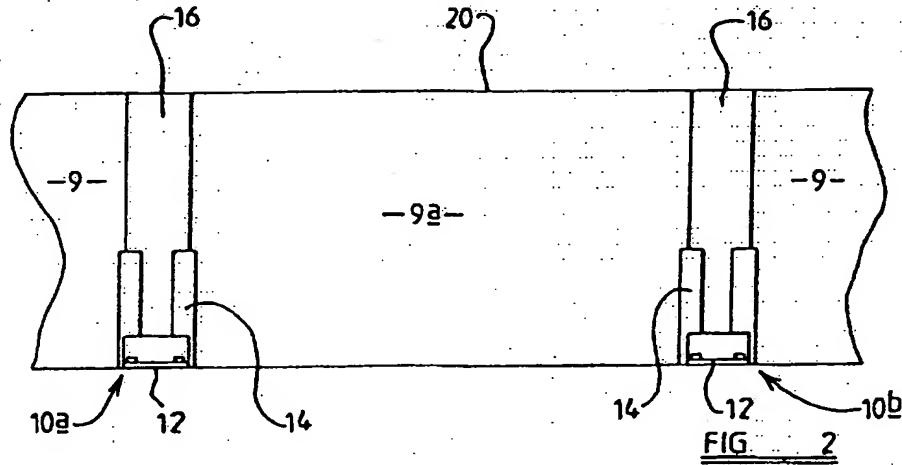
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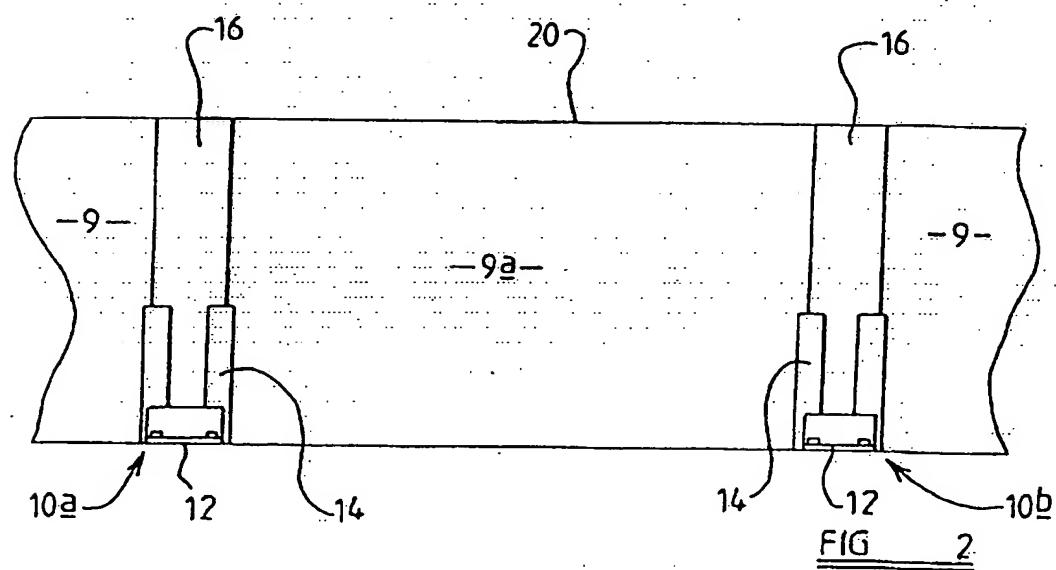
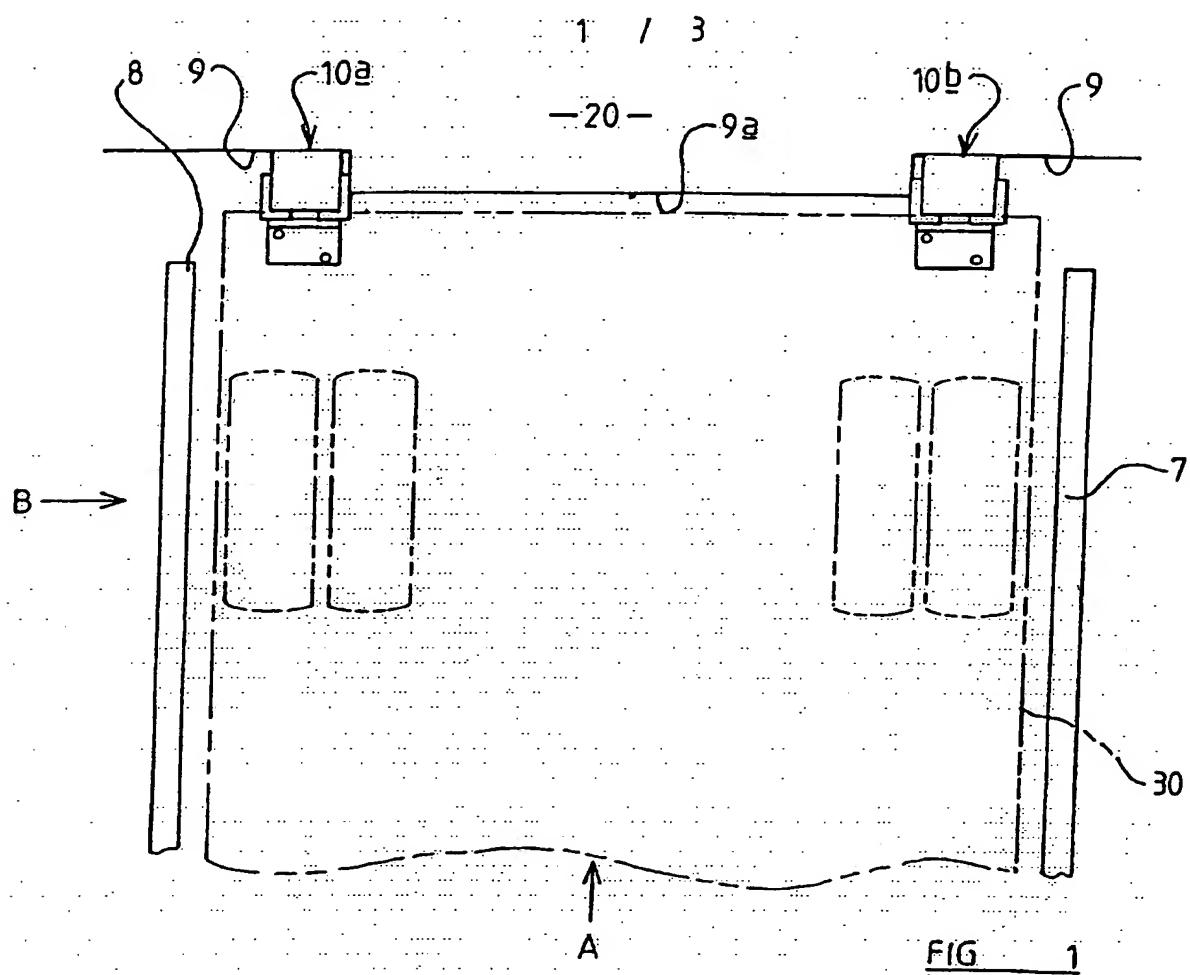
(54) Abstract Title

Vehicle loading bay

(57) The end wall (9) of a loading bay is protected by two bumpers (10a and 10b). Each bumper comprises a support member (14) extending a short distance from a flange (12), by which the support member may be bolted in position, and a resilient member (16) which may be mounted on the support member in a manner such as to be capable of limited vertical movement relative thereto. When a vehicle reverses into the bay, and strikes the resilient member (16), some at least of the load may be transmitted by the resilient member to the end wall (9). Additionally, in the event that a trailer is reversed against the bumpers vertical movement of the trailer which may take place will tend to cause vertical movement of the resilient members relative to their associated supporting members, reducing the tendency for damage to be caused.



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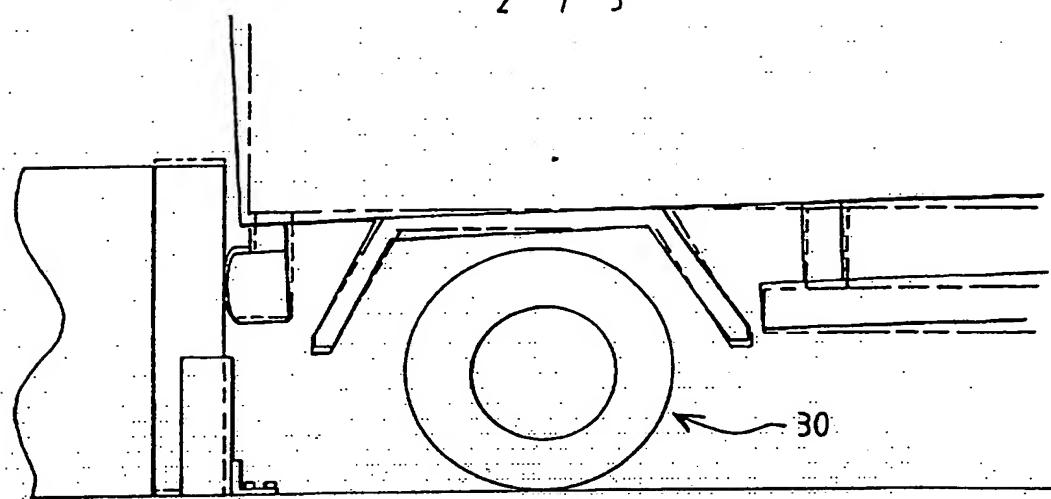


FIG 3

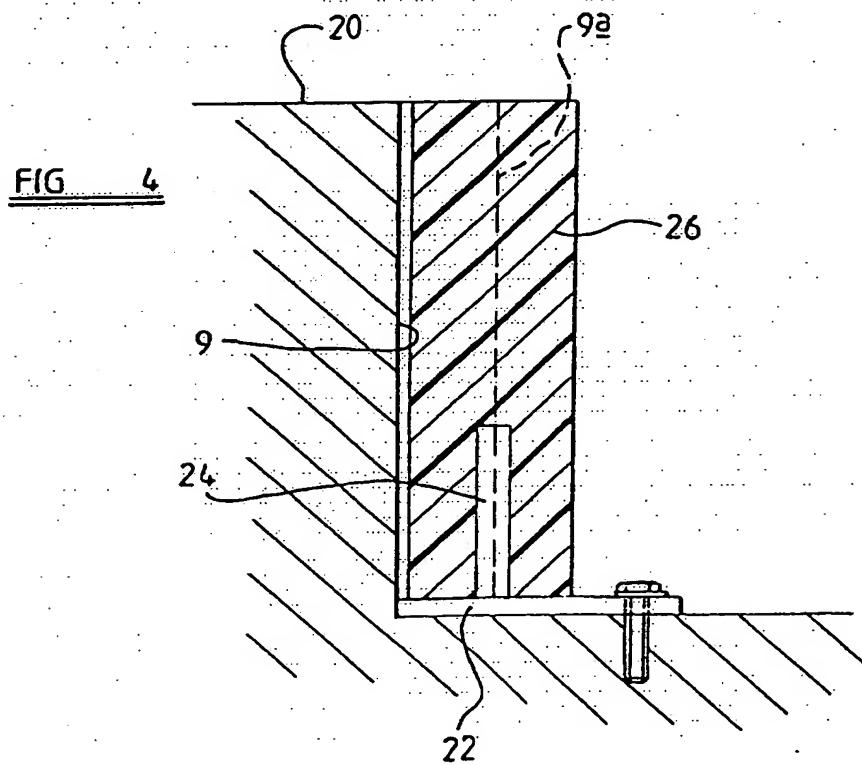


FIG 4

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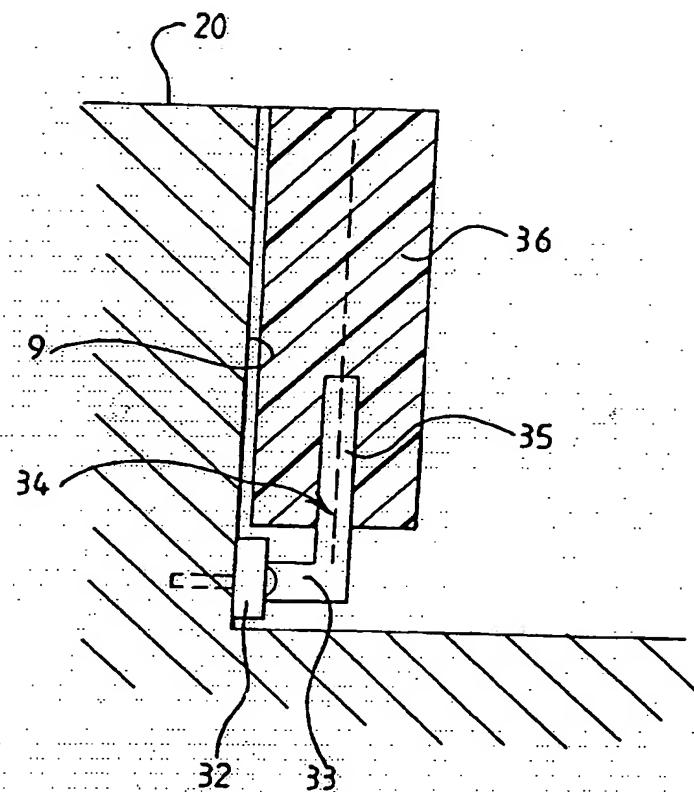


FIG 5

PATENTS ACT 1977

A9799GB-WL/djr

Title: Improvements Relating to Vehicle Loading Bays

Description of Invention

This invention is concerned with improvements relating to vehicle loading bays, particularly of the kind into which a vehicle is reversed, and onto which goods in the vehicle may be unloaded, or from which goods may be loaded onto the vehicle. The invention is equally applicable whether the vehicle loading bay is part of an extensive area, being defined (eg) by lines painted on the floor, or individual, being bounded by side walls, although the present invention will be described hereinafter in relation to the former of said two types.

A conventional loading bay is typically about three metres wide, into which a vehicle may be reversed towards an end wall of the bay into a position adjacent to a loading platform of the bay. Desirably the vehicle is reversed such that the floor of the vehicle is as close as possible to the platform, to avoid large gaps which could be dangerous.

Conventionally a bumper of rubber or other elastomeric material is bolted to the end wall of the bay, to reduce damage to the brickwork of the bay, and as a result typically the drivers of the vehicles will reverse until the vehicle strikes the bumper. This causes damage to the bumper, particularly when, as is often the case, the bumper is struck by a corner of the vehicle.

Additionally where a trailer is being reversed into such a bay, conventionally the forward wheels of the trailer are lifted by a shunter, so that the floor of the vehicle is inclined. When the trailer is reversed against the bumper, and is lowered, upward force tends to tear the bumper from the wall.

A further problem may be encountered where a ramp of a vehicle is lowered onto the loading platform, to facilitate loading and unloading of the vehicle. For example, a forklift truck may be driven across the ramp onto the

vehicle, which causes the vertical movement of the vehicle at the rear end, similarly causing damage to the bumper.

The life of a conventional bumper is thus limited, and the bumper needs to be replaced frequently. Further however, a damaged bumper may not be replaced and may fail to protect the structure of the bay from damage.

According to this invention there is provided a bumper for a vehicle loading bay, comprising a support member adapted to be secured within the bay adjacent to the end wall, and a resilient member adapted to be mounted on the support members in a manner in which limited vertical movement is permitted.

In this manner should the resilient member be engaged by the rear of the vehicle, vertical movement of the vehicle will result or tend to result in vertical movement of the resilient member, reducing the occurrence of damage.

The support member may be adapted to be secured to the floor of the bay, but if desired may be adapted to be secured to end walls of the bay, preferably in a manner in which the resilient member extends vertically adjacent to the end wall, spaced a short distance therefrom.

For example, the support member may comprise an L-shaped bracket, one limb of which may be secured to the end wall, such as by bolts, the other providing a mounting for the resilient member.

The support member may provide a slot in which the resilient member is slidably received. Alternatively the support member may provide an upstanding element such as a spindle over which an elongate aperture in the resilient member may be positioned.

According to this invention there is also provided a vehicle loading bay comprising an end wall towards which the rear of a vehicle is in use reversed, resilient protective means being provided adjacent to the end wall, comprising two support members secured within the bay, and two resilient members, one mounted on each of the support members, so located that a vehicle reversing into the bay towards the end wall will engage the resilient members, the

construction being such that limited vertical movement between the support members and the resilient members is permitted.

Preferably the support members are located at such a distance from the end wall that some at least of the impact forces between the vehicle and the resilient members are applied by the resilient members to the end wall of the bay.

Preferably the support members are constructed so as to present no impedance to engagement of the resilient members by the vehicle concerned, and the transmission of force thereby onto the end wall of the loading bay.

According to this invention there is also provided a method of protecting a loading bay against damage, involving the steps

- a) securing two support members, one on either side of the bay adjacent to the loading platform; and
- b) mounting on each support member a resilient member, such that part only of the impact force applied to the resilient members is transmitted by the resilient members against the end wall of the bay.

Preferably the resilient members are so mounted on the support members as to be capable of vertical movement relative thereto.

According to this invention there is also provided a resilient member for use in carrying out the invention set out above.

There will now be given a detailed description, to be read with reference to the accompanying drawings, of a loading bay, and buffer therefor, which are preferred embodiments of this invention, having been selected for the purposes of illustrating the invention by way of example.

In the accompanying drawings:

FIGURE 1 is a plan view of the loading bay;

FIGURE 2 is an end elevation, taken in the direction of the arrow A of

Figure 1;

FIGURE 3 is a side elevation, taken in the direction of the arrow B of Figure 1, showing a vehicle being reversed into the bay;

FIGURE 4 is a view of a first alternative construction of buffer; and

FIGURE 5 is a view of a second alternative construction of buffer.

The loading bay which is the preferred embodiment of this invention, illustrated by the number 6, is delineated by side lines 7,8 extending to an end wall 9, a central portion 9a of which projects a short distance outwardly, typically by a distance of 25mm over a width of perhaps two metres, the wall 9 bounding a loading/unloading platform 20.

The buffer comprises two bumper members 10a, 10b, located one on either side of the bay 6, in particular one either side of the central portion 9a adjacent to the end wall 9.

Each bumper member 10 comprises a flange 12 adapted to be bolted to the floor, and a support member 14 extending a short distance upwardly from the flange 12. The buffer member also comprises a resilient member 16 in the form of an elongate bar of rubber, adapted to be located by downward insertion into the support member 14, and to bear against, or at least to be closely adjacent to, the end wall 9.

Thus, when a vehicle 30 reverses into the bay, a rear part of the vehicle will engage the resilient members 16a, 16b, to prevent the vehicle from striking the wall, the resilient members 16 compressing to some extent under load, with some force being transmitted against the end wall 9.

In addition, in the event that a trailer is reversed into the bay with its forward wheels lifted, as the trailer engages the bumper members and is lowered, movement of the resilient member 16 in the vertical direction may take place, preventing tearing thereof.

The internal dimensions of the support members 14a and 14b, in relation to the external dimensions of the resilient members 16a and 16b, are such that

some degree of movement between the resilient members relative to the support members is permitted, albeit against some frictional restraint.

It has been found that by the use of bumper members of the kind described above, significant reduction to replacement is obtained. Nonetheless, in the event that one of the resilient members becomes damaged, it may very quickly be replaced, simply by removing the old member from the support member 14, and fitting therein a new resilient member.

Whilst in the preferred embodiment above described the resilient members are fitted into support members 14, which provides support for the resilient member on three sides thereof, Figure 4 shows a first alternative construction, in which the support member 24 is in the form of a spindle extending upwardly from the base plate 22, the resilient member 26, conveniently being of circular cross-section, having an internal bore for reception of the spindle, and location of the resilient member on the support member in a manner which permits relative movement therebetween to take place in the vertical direction.

The bumper which is the second alternative construction, shown in figure 5, comprises a support member of generally L-shape, comprising a limb 33 which terminates in a bracket 32 which may be bolted to the end wall 9, and a second limb 35, in the form of a spindle, on which a shock absorbing member 36 may be mounted, similar to the shock absorbing member 26 of the first alternative construction.

The length of the limb 33, and the angle of inclination of the spindle 36, is such that at the upper end at least, the member 36 is close to the end wall 9, enabling on impact, some at least of the load applied to the bumper to be transmitted to the end wall 9.

Similarly, in the event of vertical movement of a portion of the rear of the vehicle, the resilient member 36 is capable of at least limited upward movement relative to the spindle 35.

It is of course to be appreciated that whilst the invention has been described above in relation to an un-enclosed loading bay, specifically bounded by side lines 7 and 8, the invention may be utilised with equal effectiveness in relation to an enclosed loading bay, having a number of loading bays having dividing walls therebetween.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

CLAIMS

- 1 A bumper for a vehicle loading bay, comprising a support member adapted to be secured within the bay adjacent to the end wall, and a resilient member adapted to be mounted on the support members in a manner in which limited vertical movement is permitted.
- 2 A bumper according to claim 1 wherein the support member is adapted to be secured to the floor of the bay adjacent to the end wall.
- 3 A bumper according to claim 1 wherein the support member is adapted to be secured to the end wall of the bay.
- 4 A bumper according to claim 3 wherein the support member comprises an L-shaped bracket, one limb of which may be secured to the end wall, the other providing a mounting for the resilient member.
- 5 A bumper according to any one of the preceding claims wherein the resilient member extends generally vertically adjacent to the end wall, being spaced a short distance therefrom.
- 6 A bumper according to any one of the preceding claims wherein the support member provides a slot in which the resilient member is slidably received.
- 7 A bumper according to any one of claims 1 to 5 wherein the support members provides an upstanding element such as a spindle over which an elongate aperture in the resilient member may be positioned.

8 A vehicle loading bay comprising an end wall towards which the rear of a vehicle is in use reversed, resilient protective means being provided adjacent to the end wall, comprising two support members secured within the bay, and two resilient members, one mounted on each of the support members, so located that a vehicle reversing into the bay towards the end wall will engage the resilient members, the construction and arrangement being such that limited vertical movement between the support members and the resilient members is permitted.

9 A loading bay according to claim 8 wherein the support members are located at such a distance from the end wall that some at least of the impact forces between the vehicle and the resilient members are applied by the resilient members to the end wall of the bay.

10 A loading bay according to one of claims 8 and 9 wherein the support members are constructed so as to present no impedance to engagement of the resilient members by the vehicle concerned, and the transmission of force thereby onto the end wall of the loading bay.

11 A method of protecting a loading bay against damage, involving the steps

- a) securing to support members, one either side of the bay adjacent to the loading platform; and
- b) mounting on each support member a resilient member, such that part only of the impact force applied to the resilient members is transmitted by the resilient members against the end wall of the bay.

12. A method according to claim 11 wherein the resilient members are so mounted on the support members as to be capable of vertical movement relative thereto.
13. A resilient member, for use in carrying out the invention according to any one of the preceding claims.
14. A buffer for a vehicle loading bay, constructed and arranged substantially as hereinbefore described with reference to the accompanying drawings.
15. A vehicle loading bay constructed and arranged substantially as hereinbefore described with reference to the accompanying drawings.
16. A method of protecting a loading bay against damage, when carried out substantially as hereinbefore described with reference to the accompanying drawings.
17. Any novel feature or novel combination of features as hereinbefore described and/or shown in the accompanying drawings.



INVESTOR IN PEOPLE

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Claims searched: 1-10,12-16

Examiner: Colin Thompson
Date of search: 10 October 2000

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): F2S (SCF); B8E (E28)

Int Cl (Ed.7): B65G 69/00; F16F 1/44

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Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0547428 A1 (Alten) Whole document relevant	1,3
X	WO 88/08403 A1 (Harris) See Figs 2 & 3	1,3,5,8
X	US 5881414 A (Alexander) Whole document relevant	1
X	FR 2686913 A (Van Wijk) Whole document relevant	1,3-5
X	DE 19548121 A (Geb Koch GmbH) Whole document relevant	1,3,5

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention
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